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TECHNICAL AND SECRETARIAT SUPPORT OF THE MIL-STD-1515 FASTENER --ETC(U)

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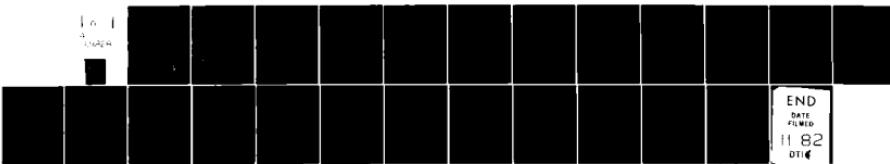
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TECHNICAL AND SECRETARIAT SUPPORT OF THE
MIL-STD-1515 FASTENER STANDARDIZATION EFFORT

BATTELLE'S COLUMBUS LABORATORIES
505 KING AVENUE
COLUMBUS, OHIO 43201

MAY 1982

FINAL REPORT FOR THE PERIOD JUNE 1976--MARCH 1982

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

MECHANICAL BRANCH
AERONAUTICAL SYSTEMS DIVISION
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433

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This technical report has been reviewed and is approved for publication.



R. P. Stewart, ASD/ENFEM
Mechanical Branch
Aeronautical Systems Division
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FOR THE COMMANDER



PETER J. BUTKEWICZ, COL, USAF
Director
Flight Systems Engineering

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ASD-TR-82-5008

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MECHANICAL BRANCH
AERONAUTICAL SYSTEMS DIVISION
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properties of recess head fasteners, and removal torque measurements of fasteners installed in various aircraft were completed during the contract term.

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FOREWORD

This report was prepared by Battelle's Columbus Laboratories, Columbus, Ohio, under Contract F33615-76-C-0803. The effort reported herein was administered under the direction of the Mechanical Branch, Aeronautical Systems Division, Wright-Patterson Air Force Base, Ohio, by Mr. Richard P. Stewart, ASD/ENFEM.

This final report covers work performed from June 1976 to March 1982. The report was submitted by the authors on March 4, 1982.

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BACKGROUND AND INTRODUCTION

Conservative estimates indicate that 20 to 30 percent of the cost of primary aircraft structure can be attributed to the procurement and installation of mechanical fastening systems. This percentage does not reflect the increased cost of maintenance, inventory, redesign, and retrofit brought about by having similar but nonequivalent fastening systems in the procuring agency's fleet. Obviously a contractual document that controls the use, selection, kinds, styles, associated tooling, and related areas of mechanical fastening can result in considerable cost savings. In recognition of the need for such a document, the Air Force, as agent for the Department of Defense, initiated at Battelle first a study plan and second a contract to implement the plan, to provide technical and secretariat support to a group organized to prepare and maintain a control or standardization document.

The group, called the Aeromechanical Fastener Requirements Group (AMFRG), is composed of various representatives from the Air Force, Navy, Army, other Department of Defense organizations, representatives from prime aerospace manufacturers, and representatives from the various fastener manufacturers.

The standardization document is MIL-STD-1515, "Fastener Systems for Aerospace Applications". The stated purpose of this document is to establish standardization in the selection, development, and use of aerospace fastening systems, including hole characteristics and inspection criteria. The primary objectives of the standard are "to document selection and application information for approved fastening systems and procedures so the designer can achieve an optimum balance of performance, reliability, and exchangeability with minimum cost, logistic inventory, and maintenance". The standard is authorized under Department of Defense Project 5300-0039 with the Air Force as preparing activity.

SUMMARY

A technical and secretariat contract was implemented at Battelle on June 30, 1976. The purpose of the effort was to provide support in the preparation and maintenance of MIL-STD-1515, "Fastener Systems for Aerospace Applications".

The study plan previously mentioned (published as ASD/TR-75-32, Military Standard 1515 Development Plan) was used as the guide for the technical and secretariat support effort. It was revised and published as the "AMFRG Manual on Organization and Operations of the Aeromechanical Fastener Requirements Group" and distributed to each member of the group. It outlines the duties and responsibilities of participating organizations and is the operating guide of the AMFRG.

Major operational activities associated with the support effort are listed in chronological order in Table 1. These do not include normal day-to-day activities such as coordinating task group activities, responding to industry and government technical inquiries, and maintaining awareness of current fastener technology, and other standardization efforts.

CONCLUSIONS AND RECOMMENDATIONS

Since the reorganization of the Aeromechanical Fastener Requirements Group, brought about by the technical and secretariat support effort, MIL-STD-1515 has become a more useful and viable document. Considerable progress has been made, as evidenced by the number and content of requirements now published in the standard (12 since 1976) and the number of requirements presently in work (17). However, with the renewed awareness in fastening technology, much of the proposed document is yet to be prepared. With the advent of new design requirements, new material developments, and increased load requirements for advanced weapons systems, it is of prime importance that MIL-STD-1515 be continually updated. In addition only 2 of the 7 chapters have been started. Chapters 300, Nonstructural, and 400, Propulsion Systems Fastener Requirements, should be started in the next 12 months in order to maintain momentum. Technical and secretariat support to the preparation, maintenance, and current awareness of the MIL-STD-1515 standardization document should be a continuing contractual effort.

TABLE 1. MAJOR OPERATIONAL ACTIVITIES

| Activity | Date Accomplished |
|--|-------------------------|
| <u>1976 Activities</u> | |
| MCG Meeting (Attended and Provided Technical and Secretariat Support) | June 30 - July 1 |
| 12th AMFRG Meeting (Attended and Provided Technical and Secretariat Support) | July 12-16 |
| MCG Minutes (Prepared and Distributed) | August 10 |
| 12th AMFRG Meeting Minutes (Prepared and Distributed) | August 12 |
| T.O. 1-1A-8 (Requested Vendor Data) | August 25 - September 3 |
| All Data Received | October 20 |
| ISG Balloting | |
| Sent Ballots (Attached to the AMFRG Minutes) | August 12 |
| Counted Ballots | September 15 |
| MCG Meeting Agenda (Distributed) | September 14 |
| AMFRG Reorganization Letter (Mailed) | September 14-16 |
| AMFRG Manual (Guidelines) | |
| Distributed to AMFRG Designees | October 4-6 (and later) |
| Distributed to MCG | October 5-6 |
| MCG Meeting (Attended and Provided Technical and Secretariat Support) | October 5-6 |
| Chapter II, Requirement 22, Captive Screws (Distributed) | October 19 |
| AMFRG Membership List (Reorganized and Prepared) | October 20 |
| Survey (Prepared and Distributed) | November 1 |
| MCG Minutes (Prepared and Distributed) | November 1 |
| New Distribution List (Prepared by Organization Type) | December 8 |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|---|-------------------|
| <u>1976 Activities (Continued)</u> | |
| Chapter II, Requirement 22, Captive Screws (Collated Components and Reported Results of AMFRG Balloting to G. Pace) | December 10 |
| Collated AMFRG Specialty Group Membership Forms | December 10 |
| 13th AMFRG Agenda (Prepared and Distributed) | December 10 |
| MCG Agenda (Prepared and Distributed) | December 10 |
| Prepared Definitions for Task Group Consideration | December 21 |
| Survey Results Collated | December 29 |
| <u>1977 Activities</u> | |
| MCG/ISG Meeting (Attended and Provided Technical and Secretariat Support) | January 10 |
| 13th AMFRG Meeting (Attended and Provided Technical and Secretariat Support--Rearranged Task Group and Meeting Schedule - Works Well) | January 11-13 |
| Visited Various Airframe and Fastener Manufacturers to Assess Impact of MIL-STD-1515 | January 14-19 |
| MCG/ISG Minutes (Prepared and Distributed) | February 16 |
| 13th AMFRG Meeting Minutes (Prepared and Distributed) | February 16 |
| Recess Fasteners T.O. Addition to WPAFB | March 1 |
| Revised Definitions to Task Group | March 3 |
| MIL-STD-1515 "A" Revision to AMFRG for Editorial and Technical Comment (Mailed) | March 22 |
| Chapter I, Requirement 6, Head Configuration (Distributed to AMFRG Membership for Balloting) | March 31 |
| Work Statement for 1978 MIL-STD-1515 Program (Delivered) | April 11 |
| Panel and Quick-Release Fastener T.O. Change (Delivered) | April 11 |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|--|----------------------|
| <u>1977 Activities (Continued)</u> | |
| Chapter I, Requirement 6, Head Configuration - Rewritten Summary and Recommendations of Ad Hoc Committee (Distributed) | April 11 |
| MCG/ISG Meeting Agenda (Distributed) | April 20 |
| Chapter I, Requirement 3, Lubrication (Distributed to AMFRG for Balloting) | May 9 |
| MCG/ISG Meeting (Attended and Provided Technical and Secretariat Support) | May 24-25 |
| Minutes of May 24-25 MCG/ISG Meeting (Prepared and Distributed) | June |
| Revised Draft of Requirement 106, Head Configuration (Prepared and Included With AMFRG Agenda) | June |
| Revised Draft of Requirement 112, Nonapproved Parts (Prepared and Included With AMFRG Agenda) | June |
| Ballots Counted and Comments Collated for AMFRG Editorial Review of MIL-STD-1515 Revision A | June |
| Ballots Counted and Comments Collated for AMFRG Periodic Review of MIL-STD-1515 Revision A | June |
| Ballots Counted and Comments Collated for AMFRG Ballot on Requirement 103, Lubrication (Copies of Collated Comments Sent to Task Group for Review) | June |
| Task Group Draft of Requirement 203, Self-Retaining Bolts (Reproduced and Distributed for AMFRG Ballot) | June |
| List of Nonapproved NASC Documents Listed in MIL-STD-1515 Submitted to Project Monitor for Disposition | June |
| MCG/ISG Agenda (Prepared and Distributed) | June 10 |
| 14th AMFRG Meeting Agenda (Prepared and Distributed) | June 14 |
| MCG/ISG Meeting (Attended and Provided Technical and Secretariat Support) | July 11 |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|--|-------------------|
| <u>1977 Activities (Continued)</u> | |
| 14th AMFRG Meeting (Attended and Provided Technical and Secretariat Support) | July 12-14 |
| Sent Inquiries Regarding Facility Availability for January 1978 AMFRG Meeting | July & August |
| MCG/ISG Meeting Minutes (Prepared and Distributed) | August 10 |
| 14th AMFRG Meeting Minutes (Prepared and Distributed)-- (Included ISG Election Ballot) | August 10 |
| Ballots Counted and Comments Collated for AMFRG Ballot on Requirement 203, Self-Retaining Bolts | August 10 |
| MCG/ISG Agenda (Prepared and Distributed) | September 6 |
| ISG Election Ballots Counted and Those Elected Notified | September 19 |
| MCG/ISG Meeting (Attended and Provided Technical and Secretariat Support) | September 27-28 |
| Sent Proposal for 1-year Contract Continuation (Became Effective September 30, 1977) | September 26 |
| Test Program on Stress Corrosion Subcontracted to Lockheed-California | September 30 |
| Observed Fastener Installation on the Stress Corrosion Test Program | October 11-12 |
| "A" Revision Resolved Comments (Reproduced and Distributed to AMFRG) | November 7 |
| Resolution of Comments on Requirement 103, Lubrication (Reproduced and Distributed) | November 7 |
| Resolution of Comments on Requirement 203, Self-Retaining Bolts (Reproduced and Distributed) | November 7 |
| Task Group Draft of Requirement 208, Spacers (Reproduced and Distributed for AMFRG Ballot) | November 7 |
| Draft of Requirement 124, Metrication and Metric Parts (Reproduced and Distributed for AMFRG Ballot) | November 7 |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|---|----------------------|
| <u>1977 Activities (Continued)</u> | |
| MCG/ISG Meeting Minutes (Prepared and Distributed) | November 7 |
| Part of A Revision Submitted to AF for Trial of New Reproduction Method | December 9 |
| Requirement 103, Lubrication (Reproduced and Distributed for Full Coordination) | December 9 |
| Requirement 106, Head Configuration (Reproduced and Distributed for Full Coordination) | December 9 |
| MCG/ISG Meeting Agenda (Prepared and Distributed) | December 9 |
| 15th AMFRG Meeting Agenda (Prepared and Distributed) | December 9 |
| Requirement 203, Self-Retaining Bolts (Reproduced and Distributed for Full Coordination) | December 9 |
| Sent Requests for Quotations for Fastener Costs to Fastener Companies for AF Head Recess Test Program | December 21 |
| <u>1978 Activities</u> | |
| Requirement 106, Head Configurations (Collated and Distributed Comments to Task Group) | January 6 |
| Requirement 103, Lubrication (Collated and Distributed Comments to Task Group) | January 11 |
| MCG/ISG Meeting (Attended and Provided Technical and Secretariat Support) | January 16 |
| 15th AMFRG Meeting (Attended and Provided Technical and Secretariat Support) | January 17-20 |
| Stress Corrosion Test Program (Visited Lockheed-California Company to Review Status) | January 23 |
| Requirement 203, Bolts, Self-Retaining (Collated and Distributed Comments to Task Group) | February 2 |
| Symposium on Nongovernment Standards (Attended to see if Preparation of MIL-STD-1515 would be effected) | February 15-17 |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|---|-------------------|
| <u>1978 Activities (Continued)</u> | |
| MCG/ISG Meeting Minutes (Prepared and Distributed) | February 27 |
| 15th AMFRG Meeting Minutes (Prepared and Distributed) | February 27 |
| Requirement 113, Identification Markings (Reproduced and Distributed for Yellow AMFRG Ballot) | February 27 |
| Requirement 124, Metrification (Reproduced and Distributed for Full Coordination) | February 27 |
| A Revision (Submitted to Project Monitor) | March 16 |
| Requirement 113, Markings (Collated and Distributed Comments to Task Group) | April 6 |
| Requirement 124, Metrification (Collated and Distributed Comments to Task Group) | April 20 |
| 5-78 MCG/ISG Meeting Agenda (Prepared and Distributed) | April 25 |
| AMFRG Logo Stationery (Prepared) | May |
| Appreciation Certificates (Prepared) | May |
| 16th AMFRG Meeting Pre-agenda Announcement (Prepared and Distributed) | May 9 |
| Requirement 103, Lubrication (Full Coordination Ballot Comments Distributed) | May 9 |
| ISG Nomination Ballot (Prepared and Distributed) | May 9 |
| 5-78 MCG/ISG Meeting (Hosted and Provided Technical and Secretariat Support) | May 24-25 |
| 5-78 MCG/ISG Minutes (Prepared and Distributed) | June 6 |
| 16th AMFRG Meeting Agenda (Prepared and Distributed) | June 6 |
| 7-78 MCG/ISG Agenda (Prepared and Distributed) | June 6 |
| 16th AMFRG Meeting (Made Final Arrangements) | June |
| 16th AMFRG Meeting Agenda (Prepared and Distributed) | June |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|--|----------------------|
| <u>1978 Activities (Continued)</u> | |
| 7-78 MCG/ISG Meeting Agenda (Prepared and Distributed) | June |
| ISG Nomination Ballots (Collated) | June |
| 16th AMFRG Meeting (Attended and Provided Technical and Secretariat Support) | July |
| 7-78 MCG/ISG Meeting (Attended and Provided Technical and Secretariat Support) | July |
| Requirement 206, Solid Rivets (Collated and Prepared for Transmittal to Task Group) | July |
| Requirement 215, Panel Fasteners (Collated and Prepared for Transmittal to Task Group) | July |
| Recess Head Test Program (Funding Received and Fasteners Ordered) | July |
| 7-78 MCG/ISG Meeting Minutes (Prepared and Distributed) | August |
| 16th AMFRG Meeting Minutes (Prepared and Distributed) | August |
| Requirement 208, Spacers (Reproduced and Distributed for Full Coordination) | August |
| Requirement 215, Panel Fasteners (Comments from AMFRG Coordination Collated and Transmitted to Task Group) | August |
| Requirement 206, Solid Rivets (Comments from AMFRG Coordination Collated and Transmitted to Task Group) | August |
| 10-78 MCG/ISG Meeting (Arrangements Made and Agenda Distributed) | September |
| ISG Election Ballots (Collated and Elected Representatives and Respective Companies Notified) | September |
| 17th AMFRG Meeting (Investigated Hotels and Made Tentative Arrangements) | September |
| 10-78 MCG/ISG Meeting (Attended and Provided Technical and Secretariat Support) | October |
| Requirement 208, Spacers (Comments from Full Coordination Collated and Transmitted to Task Group) | October |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|--|-------------------|
| <u>1978 Activities (Continued)</u> | |
| 10-78 MCG/ISG Meeting Minutes (Prepared and Distributed) | November |
| 17th AMFRG Meeting (Made Final Arrangements) | November |
| 1-79 MCG/ISG Meeting Agenda (Prepared and Distributed) | December |
| 17th AMFRG Meeting Agenda (Prepared and Distributed) | December |
| MIL-STD-1515 Support Contract Proposal Submitted (Continuation) | December |
| <u>1979 Activities</u> | |
| 1-79 MCG/ISG Meeting (Attended and Provided Technical and Secretariat Support) | January |
| 17th AMFRG Meeting (Attended and Provided Technical and Secretariat Support) | January |
| 1-79 MCG/ISG Meeting Minutes (Prepared and Distributed) | February |
| 17th AMFRG Meeting Minutes (Prepared and Distributed) | February |
| Change Notice 1 to MIL-STD-1515A (In Preparation) | February |
| 18th AMFRG Meeting - Made Preliminary Arrangements with Hotel | February |
| Recess Test Phase of Program - 5/16" Diameter A-286 Parts Received | February |
| 4-79 MCG/ISG Meeting Agenda Prepared and Distributed and Arrangements Made for the Meeting | March |
| Guidelines - Revision Completed and Attached to Agenda for Review and Comment | March |
| Requirement 108 - Reproduced and Distributed for AMFRG Ballot | March |
| Recess Test Phase of Program - A-286 and H-11 Parts Received | March |
| 4-79 MCG/ISG Meeting Hosted and Technical and Secretariat Support Provided | April |
| 18th AMFRG Meeting - Final Arrangements Being Made | April |
| Recess Test Phase of Program - All But 2 Parts Received | April |
| NBS Fixturing for Tension/Bending Fatigue Tests - Redesigned and Tension/Bending Phase of Program is Under Way | April |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|--|----------------------|
| <u>1979 Activities (Continued)</u> | |
| 4-79 MCG/ISG Meeting Minutes Prepared and Distributed | May |
| 18th AMFRG Meeting Agenda (Prepared and Distributed) | May |
| 7-79 MCG/ISG Agenda Prepared and Distributed | May |
| 18th AMFRG Meeting Final Arrangements Made With Hotel | May |
| Requirement 113 Sent Out for Blue Ballot (Full) Coordination | May |
| Requirement 115 Sent Out for Yellow Ballot (AMFRG) Coordination | May |
| Requirement 129 Sent Out for Yellow Ballot (AMFRG) Coordination | May |
| Requirement 206 Sent Out for Blue Ballot (Full) Coordination | May |
| Requirement 223 Sent Out for Yellow Ballot (Full) Coordination | May |
| AMFRG Manual Revised | May |
| Recess Test Phase of Program - Tension/Tension Fatigue Tests of Tension (Full-Head) Fasteners Essentially Completed | May |
| Requirement 113 - Blue Ballots Collated and Comments Sent to Task Groups for Discussion at July Meeting | June |
| Requirement 115 - Yellow Ballots Collated and Comments Sent to Task Groups | June |
| Requirement 129 - Yellow Ballots Collated and Comments Sent to Task Groups | June |
| Requirement 206 - Blue Ballots Collated and Comments Sent to Task Groups | June |
| Requirement 223 - Yellow Ballots Collated and Comments Sent to Task Groups | June |
| AMFRG Manual Reproduced and Distributed to AMFRG Members | June |
| Recess Test Phase of Program - One-half of Reduced Head Tests are Done and Fatigue Tests for 1/4- and 3/16-Inch Diameter Fasteners (Full-Head) are Completed | June |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|---|-------------------|
| <u>1979 Activities (Continued)</u> | |
| 7-79 MCG/ISG Meeting Attended and Technical and Secretariat Support Provided | July |
| 18th AMFRG Meeting Attended and Technical and Secretariat Support Provided | July |
| Submitted Proposal to Supplement Data Base on Removal Torques of Flush-Head Fasteners | July |
| Recess Test Phase of Program - Received Final Shipment of Parts | July |
| 18th AMFRG Meeting Minutes Prepared and Distributed | August |
| 7-79 MCG/ISG Meeting Minutes Prepared and Distributed | August |
| Requirement 202, Studs, Distributed for AMFRG Ballot | August |
| ISG Ballot Distributed | August |
| Contract Modification Involving Torque Measurements Received | August |
| 10-79 MCG/ISG Meeting Agenda Prepared and Distributed | September |
| ISG Ballots Tabulated | September |
| Requirement 202, Studs, Ballots Collated | September |
| Tension/Tension Phase of the Recess Test Program Completed | September |
| Meeting Regarding Removal Torque Program Held | September |
| 10-79 MCG/ISG Meeting Attended and Provided Secretariat Support | October |
| 10-79 MCG/ISG Meeting Minutes Prepared and Distributed | October |
| Requirements 121, Threads in Bearing, 129, Captive Screws, and 201, Bolts and Screws Distributed for AMFRG Ballot | October |
| Requirement 129, Design Requirements for Panel Fasteners Distributed for Full Coordination | October |
| 19th AMFRG and 1-80 MCG/ISG Meeting Arrangements Finalized | November |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|--|----------------------|
| <u>1979 Activities (Continued)</u> | |
| Removal Torque Measurements Made on Aircraft at North Island and Miramar Naval Air Stations | November |
| 19th AMFRG Meeting Agenda Prepared and Distributed | December |
| 1-80 MCG/ISG Meeting Agenda Prepared and Distributed | December |
| Comments on Four Requirements Collated | December |
| Recess Program Testing Completed | December |
| <u>1980 Activities</u> | |
| 1-80 MCG/ISG Meeting Attended and Provided Technical and Secretariat Support) | January |
| 19th AMFRG Meeting Attended and Provided Technical and Secretariat Support) | January |
| Requirement 128, Captive Screws (Prepared and Distributed for Blue Ballot Comments) | January |
| Testing on Recess Test Fatigue Program Completed and Data Submitted to Project Monitor | January |
| 1-80 MCG/ISG Meeting Minutes Prepared and Distributed | February |
| 19th AMFRG Meeting Minutes Prepared and Distributed | February |
| Sent Letters Requesting Hotel and Meeting Space Information for AMFRG Meeting to be Held January 1981 | February |
| Screened Responses Received from Hotels for 21st and 22nd AMFRG Meetings | March |
| Requirement 128, Design Requirements for Captive Screws (Blue Ballots Collated and Sent to Task Group Members) | March |
| Completed Arrangements for 20th AFMRC Meeting | April |
| Completed Arrangements for 7-80 MCG/ISG Meeting | April |
| Made Final arrangements to Visit Oceana Naval Air Facility and Langley AFB (To Continue the Removal Torque Measurements Phase of This Program) | April |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|---|-------------------|
| <u>1980 Activities (Continued)</u> | |
| 7-80 MCG/ISG Meeting Agenda Prepared and Distributed | May |
| 20th AMFRG Meeting Agenda Prepared and Distributed | May |
| Removal Torque Measurements Phase of Program Completed and Draft Report in Preparation | May |
| Removal Torque Measurements Special Interim Report Prepared and Submitted to Project Monitor | June |
| Draft of the Final Report on Tension/Tension and Tension/Bending Fatigue Evaluation of Various Recess Fasteners in Preparation | June |
| 7-80 MCG/ISG Meeting Attended and Provided Technical and Secretariat Support) | July |
| 20th AMFRG Meeting Attended and Provided Technical and Secretariat Support) | July |
| 7-80 MCG/ISG Meeting Minutes Prepared and Distributed | July |
| 20th AMFRG Meeting Minutes Prepared and Distributed | July |
| Supplemental Report on Tension/Tension and Tension/Bending Fatigue Evaluations of Various Recess Fasteners (Submitted to Project Monitor) | July |
| Requirement 127, Access Panel Attachments (Revised, Reproduced, and Distributed for Yellow Ballot) | August |
| Requirement 130, Sandwich Construction Fastening (Revised, Reproduced, and Distributed for Yellow Ballot) | August |
| Requirement 213, Blind Fasteners (Revised, Reproduced, and Distributed for Yellow Ballot) | August |
| Requirement 201, Bolts (Revised, Reproduced, and Distributed for Blue Ballot) | August |
| Requirement 202, Studs (Revised, Reproduced and Distributed for Blue Ballot) | August |
| 10-80 MCG/ISG Meeting (Tentative Plans Made) | August |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|---|-------------------|
| <u>1980 Activities (Continued)</u> | |
| 10-80 MCG/ISG Meeting Agenda Prepared and Distributed | September |
| 1-81 MCG/ISG and 21st AMFRG Meeting (Tentative Arrangements Made) | September |
| 10-80 MCG/ISG Meeting (Attended and Technical and Secretariat Support Provided) | October |
| Requirements 127, 130, 201, 202, and 213 (Comments Received from Coordination and Being Collated) | October |
| 10-80 MCG/ISG Meeting Minutes Prepared and Distributed | November |
| 1-81 MCG/ISG and 21st AMFRG Meeting Agendas Prepared (Not Distributed due to Lack of Incremental Funding) | November |
| Arrangements Finalized for 1-81 MCG/ISG and 21st AMFRG Meeting | December |
| Agendas for 1-81 MCG/ISG and 21st AMFRG Meetings Reproduced and Distributed | December |
| <u>1981 Activities</u> | |
| 1-81 MCG/ISG Meeting (Attended and Technical and Secretariat Support Provided) | January |
| 21st AMFRG Meeting (Attended and Technical and Secretariat Support Provided) | January |
| Change Notice 2 to MIL-STD-1515A Drafted | January |
| 1-81 MCG/ISG and 21st AMFRG Meeting (Minutes of Both Prepared, Reproduced, and Distributed) | February |
| Change Notice 2 to MIL-STD-1515A (Finalized and Delivered to Project Monitor) | February |
| Requirements 205, 209, 210, and 220 (Reproduced and Distributed for Periodic Review) | February |
| 3-81 MCG/ISG Meeting Agenda Prepared and Distributed | February |
| 3-81 MCG/ISG Meeting (Attended and Technical and Secretariat Support Provided) | March |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|--|-------------------|
| <u>1981 Activities (Continued)</u> | |
| 3-81 MCG/ISG Meeting Minutes Prepared | March |
| 3-81 MCG/ISG Meeting Minutes Reproduced and Distributed | April |
| 7-81 MCG/ISG and 22nd AMFRG Meeting (Tentative Plans Made) | April |
| Requirements 120, 130, and 213 (Reproduced and Distributed for Ballot) | April |
| Requirements 202, 209, 210, and 220 (Comments Received from Periodic Review Collated and Reviewed) | April |
| 22nd AMFRG Meeting Notice Distributed | May |
| ISG Election Ballot Distributed | May |
| 7-81 MCG/ISG and 22nd AMFRG Meeting (Arrangements Finalized) | May |
| Requirement 214 (Reproduced and Distributed for Ballot) | May |
| 7-81 MCG/ISG and 22nd AMFRG Meeting Agendas Prepared | May |
| 7-81 MCG/ISG and 22nd AMFRG Meeting Agendas Reproduced and Distributed | June |
| Requirements 120, 130, 213, and 214 (Comments Collated, Reproduced, and Distributed) | June |
| 7-81 MCG/ISG Meeting (Attended and Technical and Secretariat Support Provided) | July |
| 22nd AMFRG Meeting (Attended and Technical and Secretariat Support Provided) | July |
| 7-81 MCG/ISG and 22nd AMFRG Meetings (Minutes Prepared) | July |
| 7-81 MCG/ISG and 22nd AMFRG Meetings (Minutes Reproduced and Distributed) | August |
| Requirements 201 and 210 (Revised as Directed by MCG/ISG) | August |
| Requirement 210 (Reproduced and Distributed for Ballot) | August |
| ISG Election Ballots (Received, Tallied, and Elected Members Notified) | September |

TABLE 1. (Continued)

| Activity | Date Accomplished |
|---|-------------------|
| <u>1981 Activities (Continued)</u> | |
| Requirement 210 Comments Received and Collated | September |
| 1-82 MCG/ISG and 23rd AMFRG Meetings (Tentative Arrangements Made) | September |
| MIL-STD-1599 (ACBG) Meeting (Attended and Technical and Secretariat Support Provided) | October |
| 1-82 MCG/ISG and 23rd AMFRG Meeting (Arrangements Finalized) | October |
| 1-82 MCG/ISG and 23rd AMFRG Meetings (Agendas Prepared) | November |
| 23rd AMFRG Meeting Notice Distributed | November |
| 1-82 MCG/ISG and 23rd AMFRG Meetings (Agendas Reproduced and Distributed) | December |
| ACBG Meeting Minutes (for Approval) | December |
| <u>1982 Activities</u> | |
| 1-82 MCG/ISG Meeting (Attended and Technical and Secretariat Support Provided) | January |
| 23rd AMFRG Meeting (Attended and Technical and Secretariat Support Provided) | January |
| 1-82 MCG/ISG and 23rd AMFRG Meeting (Minutes Prepared) | January |
| 1-82 MCG/ISG and 23rd AMFRG Meeting Minutes Reproduced and Distributed | February |
| Requirement 120 Retyped, Reproduced, and Distributed for Blue Ballot | February |
| Requirement 126 Retyped, Reproduced, and Distributed for Yellow Ballot | February |

